

REMARKS

Claims 1-84 are pending in the application. Claim 51 is being amended to include the limitations of claim 68, which is allowable, except for the limitation of “intermittently.” Claim 68 is being amended to limit amended claim 51 with the term “intermittently.” No new matter is being introduced by way of this amendment.

Claims 1-4, 6-20, 24, 26-39, 43-44, 46-52, 54-58, 62-64, 69-77, and 82-84 were rejected under 35 U.S.C. 103(a) as being unpatentable over Palmero et al. (WO 96/37052) in view of Kommrusch (U.S. Pat. No. 3,906,405).

Applicants’ Claim 1 as originally filed recites a method for supporting inductive communications, comprising “coupling a transducer to a selected first or second circuit for either transmitting or receiving; adjusting electrical characteristics of the first circuit to increase a magnetic field generated by the transducer; adjusting electrical characteristics of the second circuit to increase a signal generated by the transducer.”

Palmero et al. discloses an inductive communications system, but, as stated in the paragraph bridging pages 2 and 3 of the Office Action at hand, does not explicitly disclose “adjusting electrical characteristics of the first circuit to increase a magnetic field generated by the transducer and adjusting electrical characteristics of the second circuit to increase a signal generated by the transducer.”

Kommrusch discloses a tuning circuit for a Radio Frequency (RF) communications system. As disclosed in col. 2, lines 24-28, “the tuning circuit makes it possible to provide a wide range of coupling impedances in small incremental steps, so that it can be used effectively with antennas of different types under various conditions and over a wide range of frequencies.” The Kommrusch tuning circuit is thus adaptable for use in various systems using various antenna types and impedances. This is fundamentally different from Applicants’ invention as recited in claim 1, which includes coupling a transducer to two circuits, where one circuit increases the magnetic field on transmission and the other circuit increases the signal generated by the transducer on reception. Kommrusch neither discloses the tuning network uses different values

for transmission or reception nor discloses that different circuit characteristics are used for generating or receiving signals.

Kommrusch further discloses in col. 2, lines 28-31, “[t]he coupling circuit can be used at relatively high power so that it can be used for applying signals from a transmitter to an antenna, as well as from the antenna to a receiver.” Although the Kommrusch coupling circuit may be used for transmission or reception, Kommrusch neither discloses the tuning network uses different values for transmission or reception nor discloses that different circuit characteristics are used for generating or receiving signals.

Applying substantially different circuit characteristics to a transducer for field generation and field reception is an advantage for inductive communications systems that does not apply to Radio Frequency (RF) communications systems. Inductive communications systems use transducers that transmit using quasi-static magnetic flux lines in the near field, whereas RF communications systems transmit using far field, forward propagating waves. Specifically, on transmission, the impedance of the transducer is transformed using the circuit to a low impedance that is real (i.e., no significant reactive component). See Applicants’ specification as originally filed at least at page 10, line 30 through page 11, line 10 and page 28, lines 18-24. Conversely, on reception, the transducer is transformed to a high impedance that is also real. See Applicants’ specification at least at page 5, lines 18-24. The characteristic of a low impedance on transmit and high impedance on receive is preferable in bi-directional magnetic communications systems. Thus, it is not surprising that Kommrusch does not disclose the limitations recited in Applicants’ claim 1 (“adjusting electrical characteristics of the first circuit to increase a magnetic field generated by the transducer” and “adjusting electrical characteristics of the second circuit to increase a signal generated by the transducer”).

Further, since inductive communications systems and RF communications systems use wireless signals having different properties such as the properties described above, circuits and/or circuit operations of one technology are not generally applied to the other technology; Applicants suggest that the invention as recited in claim 1 falls into this category.

Thus, Applicants respectfully submit that Applicants’ invention as recited in claim 1 is non-obvious over Palmero et al. in view of Kommrusch. Accordingly, the rejection under 35 U.S.C. §103(a) should be withdrawn.

Because claims 2-4, and 6-10 depend from claim 1, these claims should be allowed for at least the same reasons.

Independent claim 11 includes similar limitations as claim 1 (“via a first circuit, effectively tuning the transducer ... for generating a magnetic field ...; via a second circuit, effectively tuning the transducer ... for receiving a magnetic field ...”). For reasons described above in reference to claim 1, claim 11 should also be allowed under 35 U.S.C. §103(a) over Palmero et al. in view of Kommrusch.

Because claims 12-20, 24, 26-35 depend from claim 11, these claims should also be allowed for at least the same reasons.

Independent claim 36 includes similar limitations as claim 1 (“switching to select one of multiple circuit paths for either transmitting or receiving over a transducer via inductive coupling”). For reasons described above in reference to claim 1, claim 36 should also be allowed under 35 U.S.C. §103(a) over Palmero et al. in view of Kommrusch.

Because claims 37-39, 43-44, and 46-50 depend from claim 36, these claims should also be allowed under 35 U.S.C. §103(a) for at least the same reasons.

Independent claim 51 as amended includes similar claim limitations as claim 1 (“adjusting characteristics of the circuit during use based upon feedback to more efficiently transmit or receive over one of the multiple transducers”). For reasons described above in reference to claim 1, claim 51 should also be allowed under 35 U.S.C. §103(a) over Palmero et al. in view of Kommrusch.

Because claims 52, 54-58, 62-64, 69-70 depend from claim 51, these claims should also be allowed under 35 U.S.C. §103(a) for at least the same reasons.

Independent claim 71 includes similar claim limitations as claim 1 (“coupling a transducer to a circuit to transceive a magnetic field; and adjusting characteristics of the circuit to transceive over the transducer”). For reasons described above in reference to claim 1, claim 71 should also be allowed under 35 U.S.C. §103(a) over Palmero et al. in view of Kommrusch.

Because claims 72-77 and 82-84 depend from claim 71, these claims should also be allowed under 35 U.S.C. §103(a) for at least the same reasons.

Claims 5, 22-23, and 53 were rejected under 35 U.S.C. §103(a) over Palmero et al. in view of Petro as applied to claims 1, 11, 36, 51, and 71, further in view of Shloss et al. (U.S.

5,425,032). Because claim 5 depends from claim 1, claims 22-23 depend from 11, and 53 depends from 51, the above arguments apply. Neither Petro nor Shloss et al. alone or in combination with Palmero et al. or Kommrusch disclose Applicants' invention as recited in claim 1, dependent claims 5, 22-23, and 53 should be allowed for at least the same reasons.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. §103(a) should be withdrawn.

Claims 65-67 and 78-80 were rejected under 35 U.S.C. §103(a) over Palmero et al. in view of Petro as applied to claim 71 and further in view of Wilkins et al. (U.S. 4,965,607). Because claims 65-67 and 78-80 depend from claim 71, the above arguments apply. Neither Petro nor Wilkins et al. alone or in combination with Palmero et al. or Kommrusch disclose Applicants' invention as recited in claim 71, dependent claims 65-67 and 78-80 should be allowable for at least the same reasons.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims (Claims 1-84) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By Mark B. Solomon
Mark B. Solomon
Registration No. 44,348
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133
Dated: 6/28/04